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(22) Date of filing 03.08.1990

(Incorporated in the United Kingdom)

(72) Inventors  
Robert Rodwell  
John Moore  
John Perry

(74) Agent and/or Address for Service  
Marks & Clerk  
57-60 Lincoln's Inn Fields, London, WC2A 3LS,  
United Kingdom

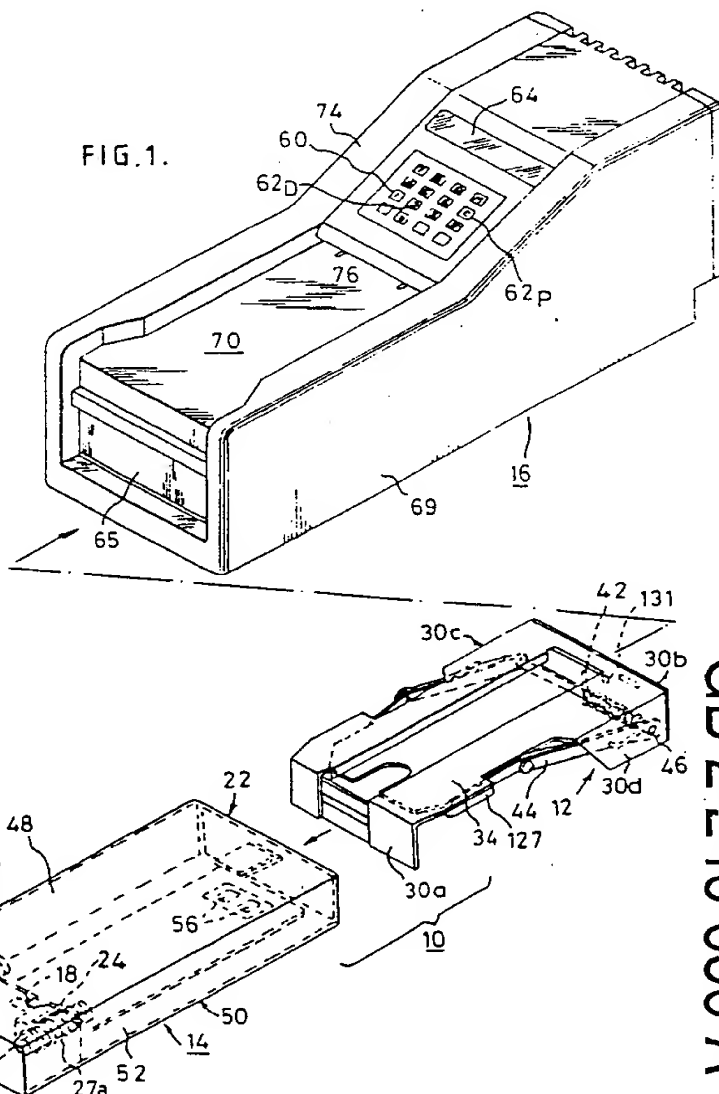
(51) INT CL<sup>3</sup>  
G07D 11/00, B65D 85/62, B65H 39/00 // B65H  
43/08

(52) UK CL (Edition K)  
G4X X5  
B8R RAJ9 RSS R611 R621 R671 R723  
E2X X5

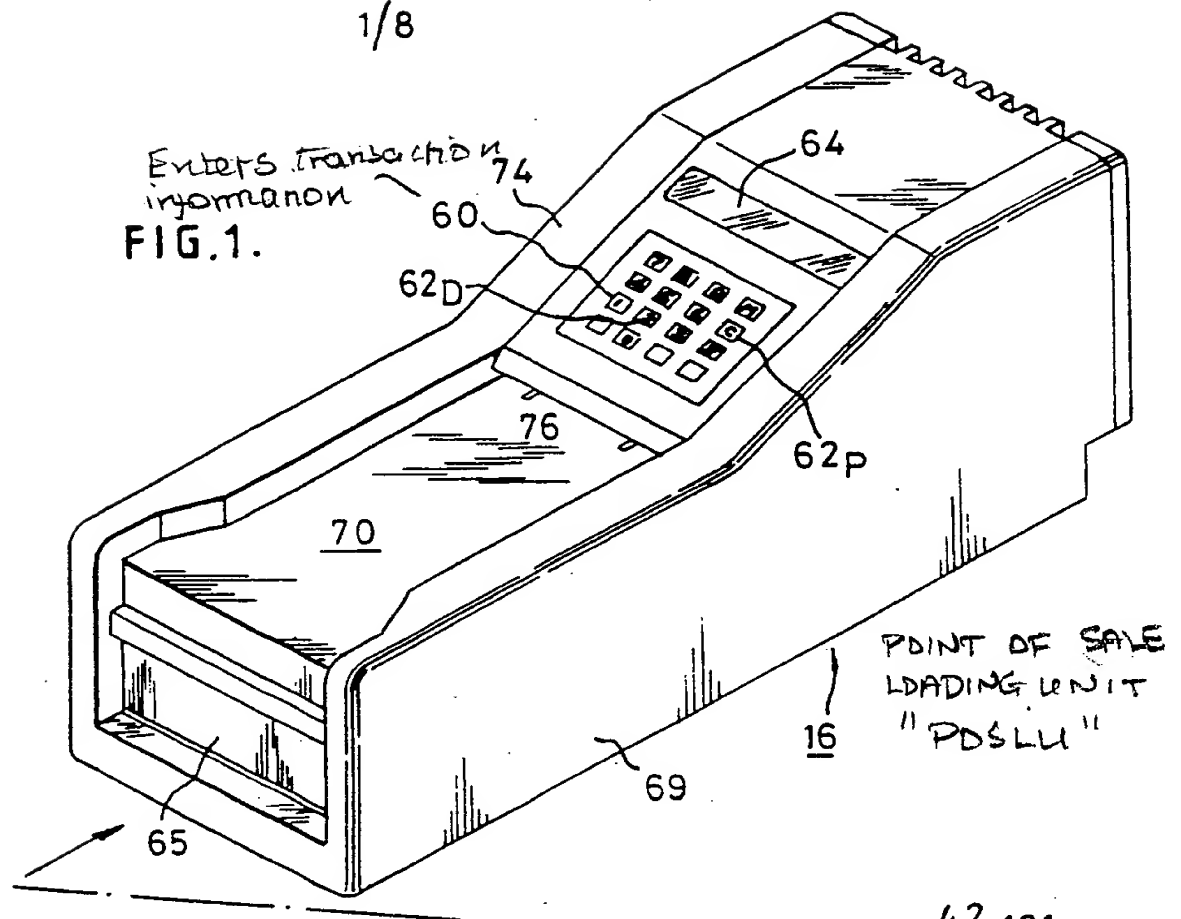
(56) Documents cited  
GB 2217086 A

(58) Field of search  
UK CL (Edition K) E2X X5, G4X X5  
INT CL<sup>5</sup> G07D

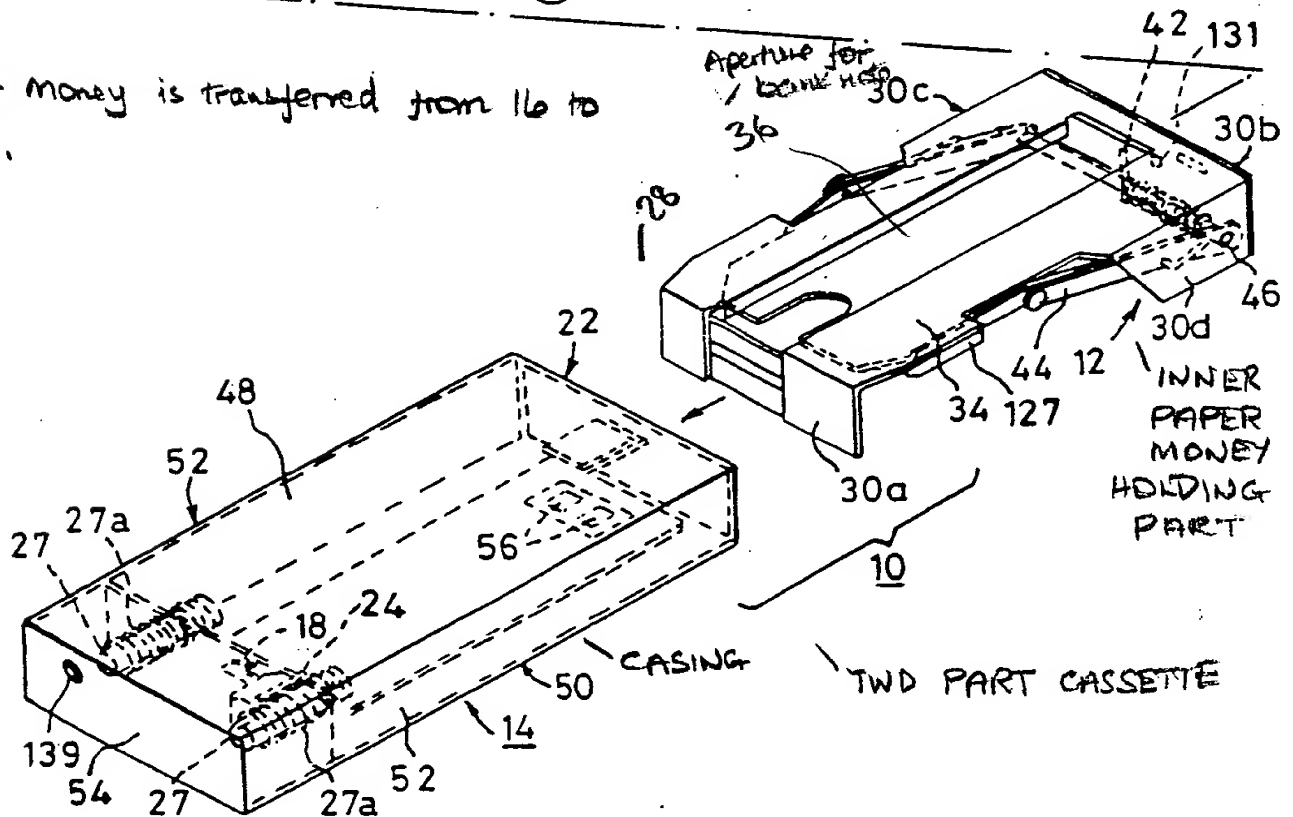
(57) A system for transferring surplus paper currency, eg bank notes, cheques or card vouchers from a point-of-sale to a receiving location, such as a bank, comprises a secure, two-part cassette 10 and a point-of-sale loading unit, or "POSLU", 16 which automatically feeds bank notes into the cassette 10. The entire cassette 10 is loaded into the POSLU 16, which locks onto the inner part 12 of the cassette 10, allowing the casing 14 of the cassette 10 to be withdrawn. The POSLU (16) detects eg photoelectrically the value of notes going into the cassette inner part 12. Before removing the inner part the casing is again introduced and at this point the POSLU enters the value into an internal memory of the cassette 10, to be read at the receiving location. During transfer, the cassette casing 14 locks itself onto the inner part 12. A receiving unit has its own keyboard for identifying the user, a display unit for displaying the contents of the cassette, and means for allowing removal of the paper currency. The cassette inner part has a fixed element 34 with an aperture through which the currency is pushed by a pusher (82, Fig 9), a resiliently biased holding element 44 holding the currency between it and the element 34. The currency is fed by pairs of belts or cords from the reception area 70 to the aperture in the element 34.



GB 2246 656 A



Paper money is transferred from 16 to 10.



TWD PART CASSETTE

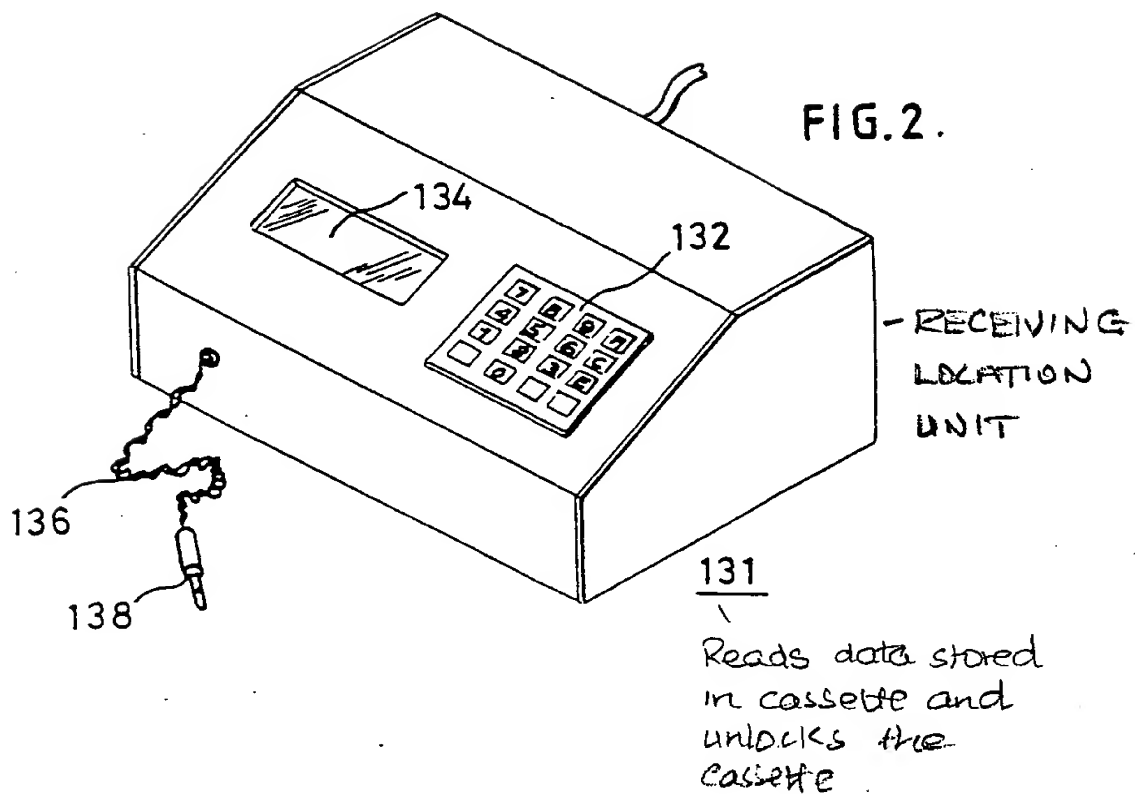
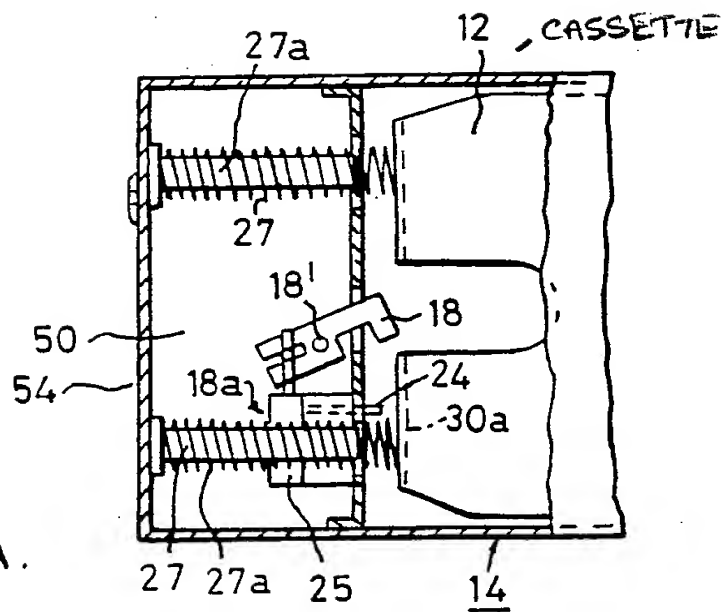
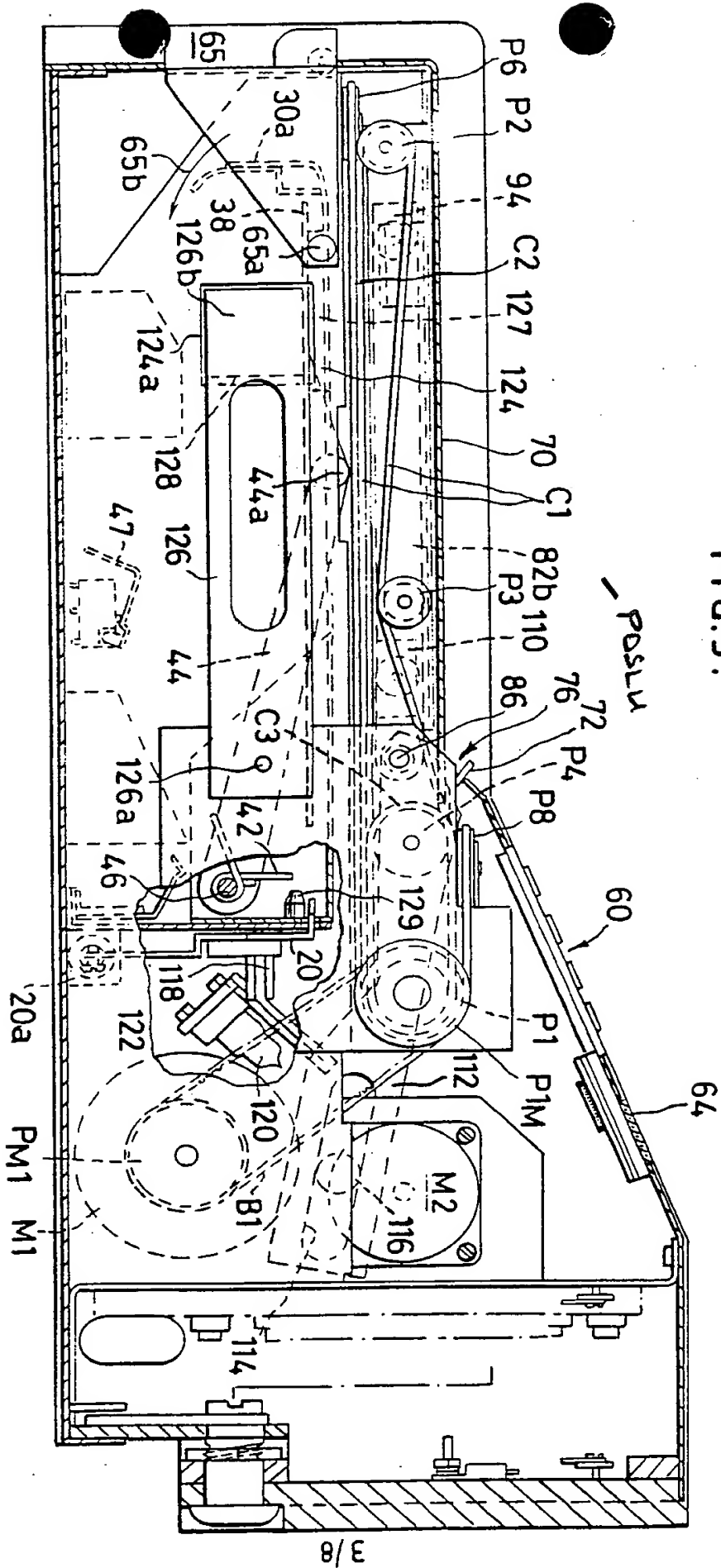


FIG. 3.



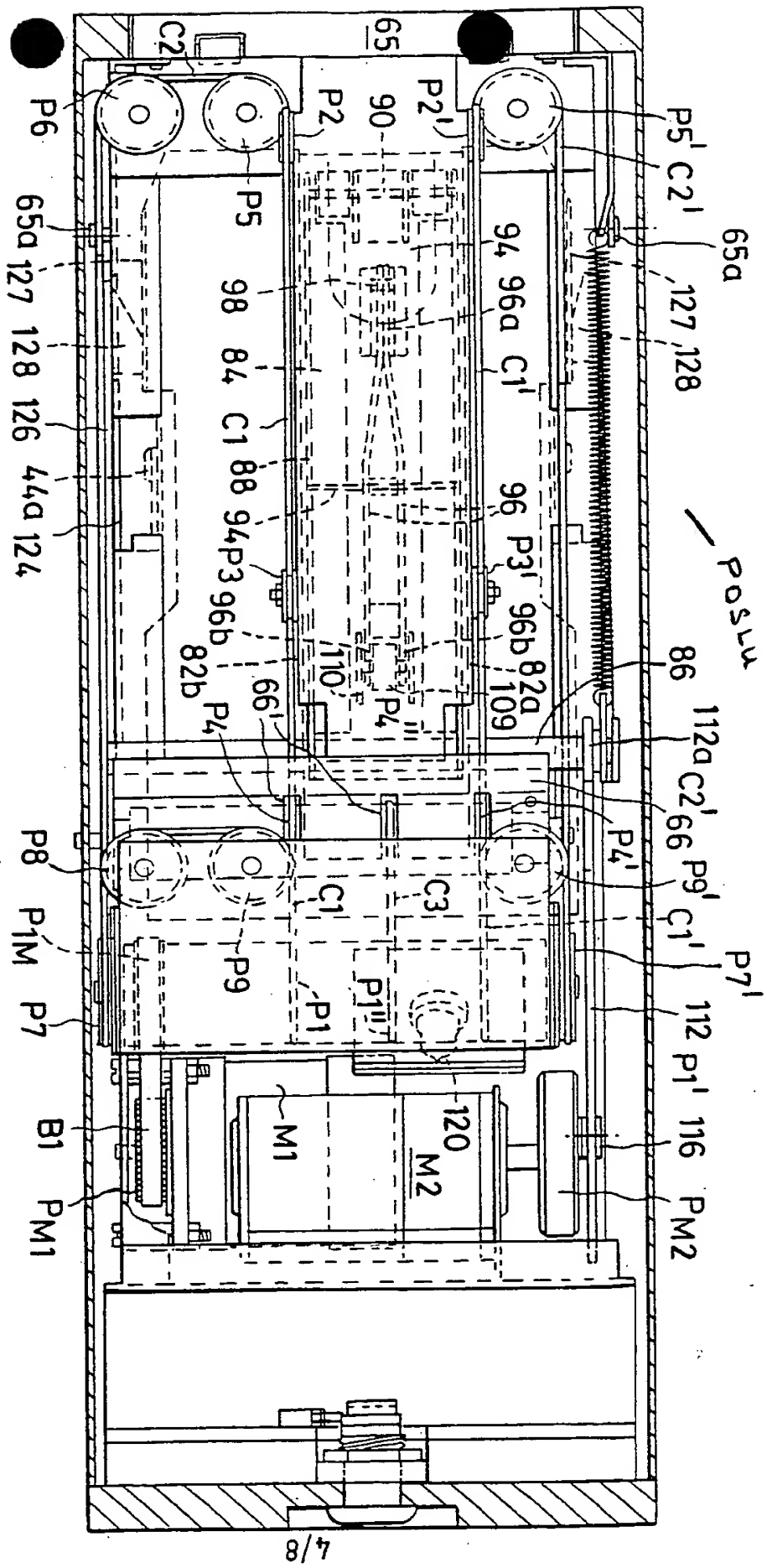


FIG. 4.

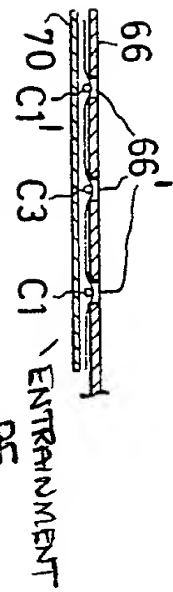


FIG. 5.

BANK NOTE

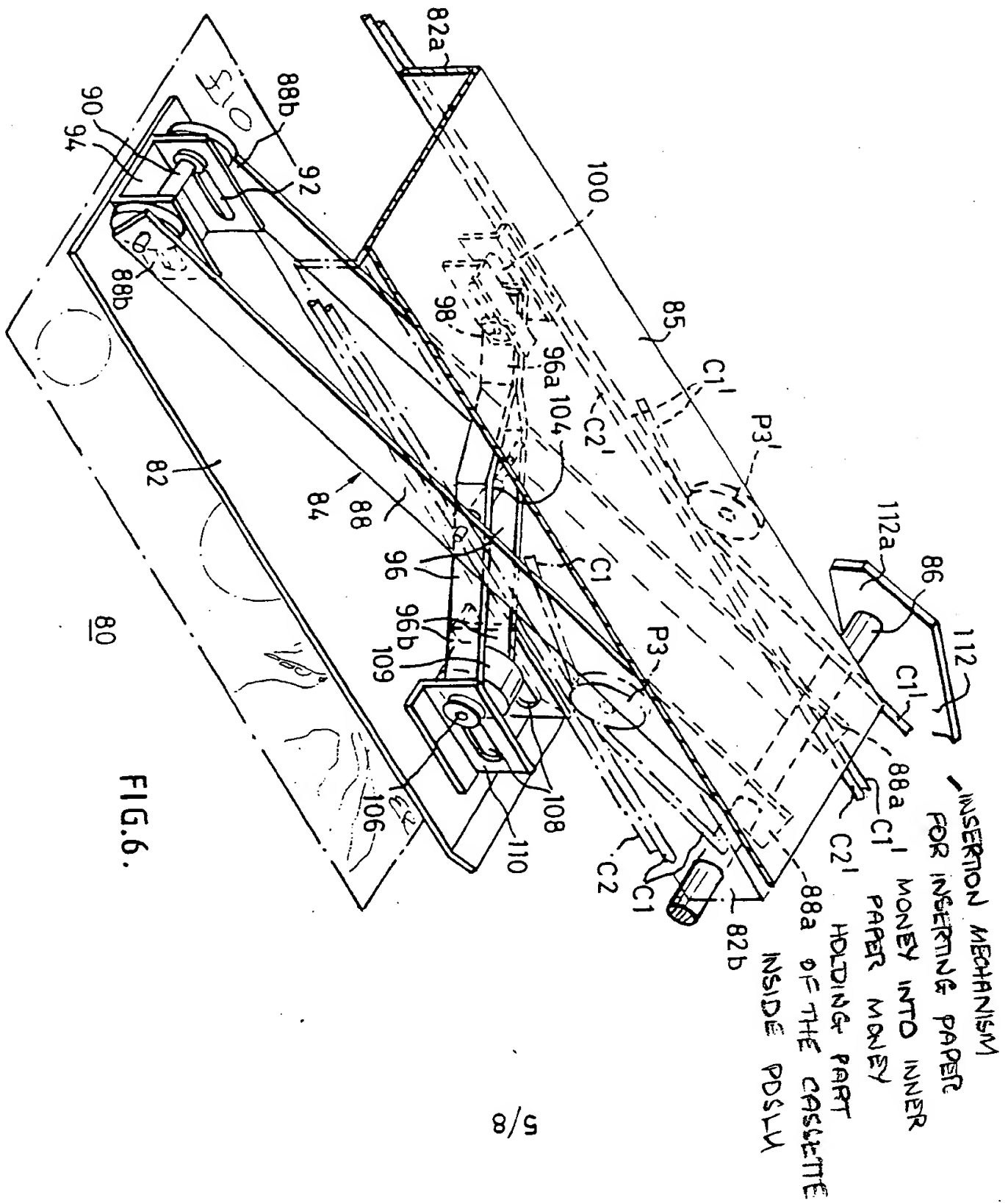
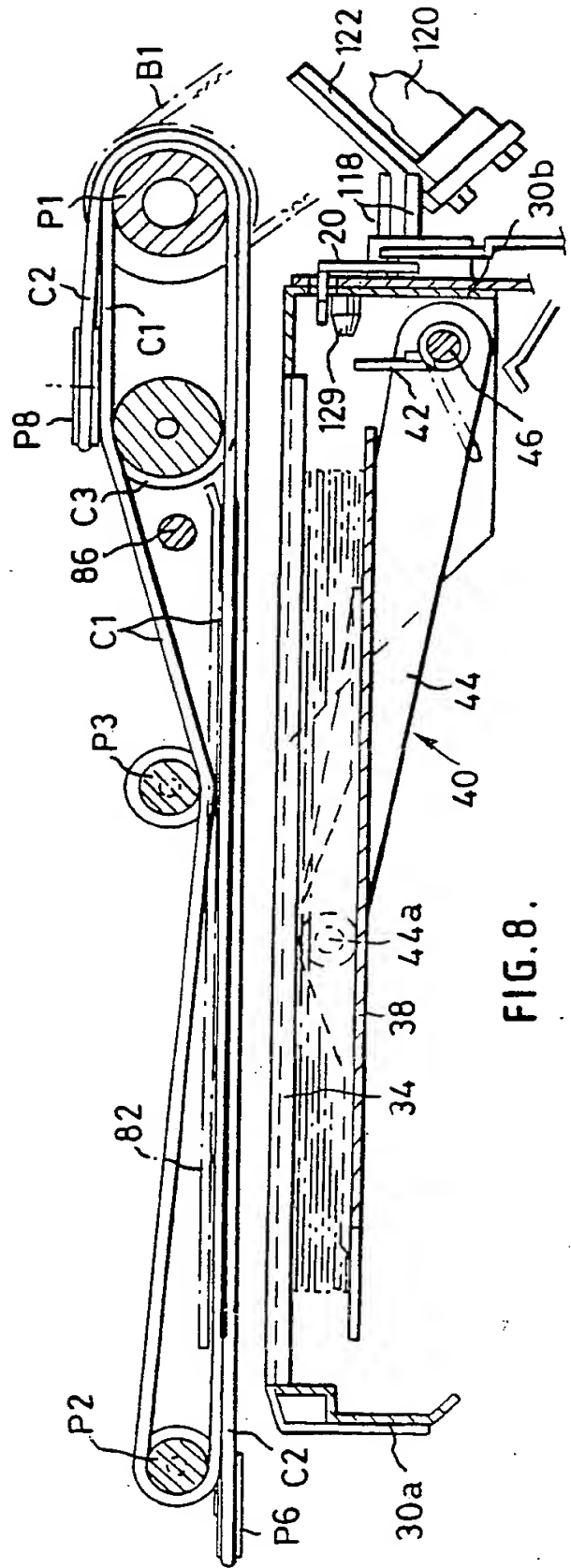
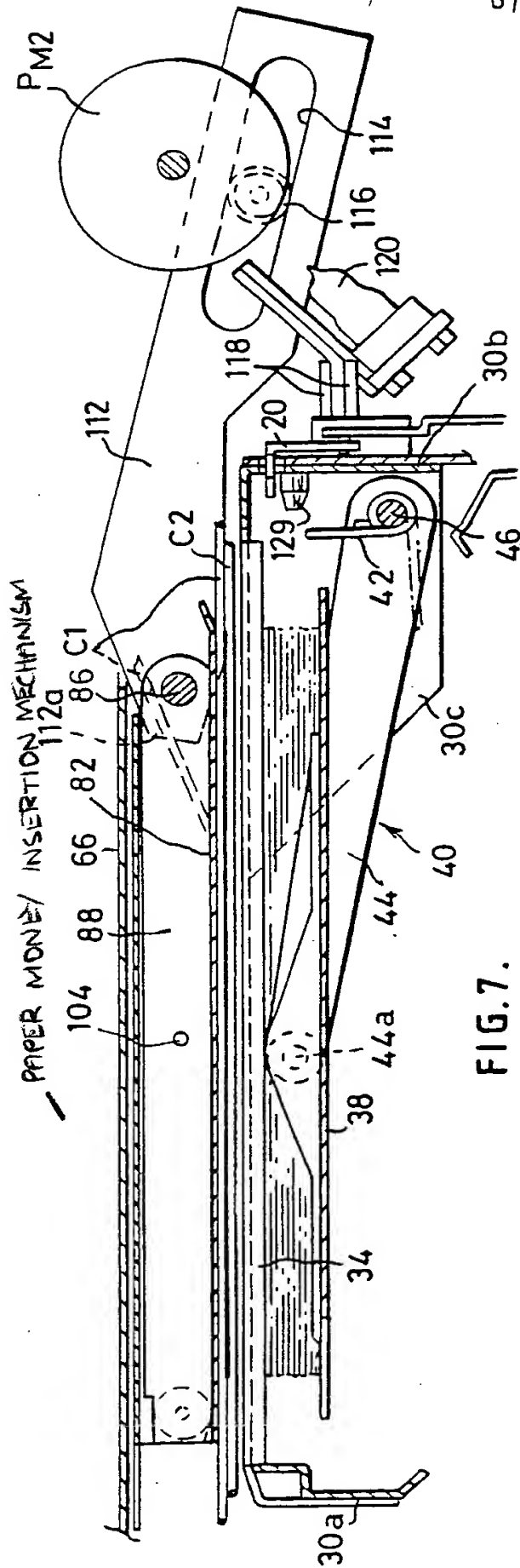


FIG. 6.





COIN MONITOR BEING INSERTED

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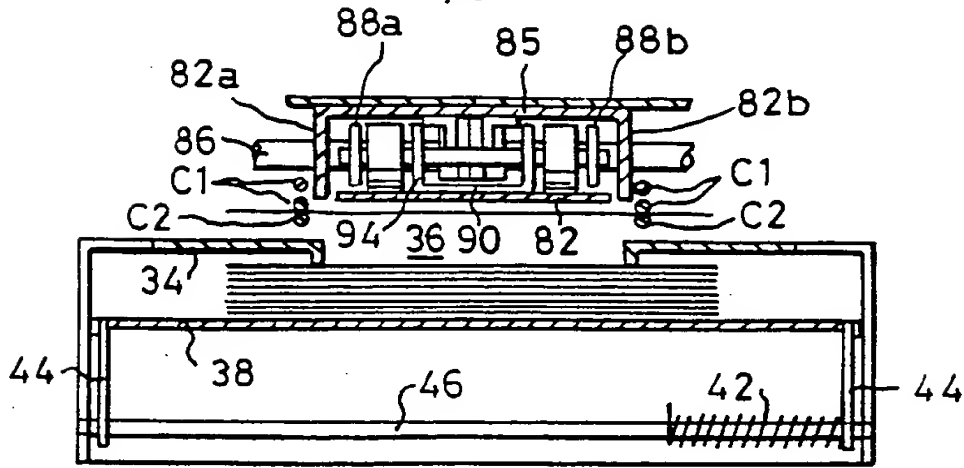


FIG. 9.

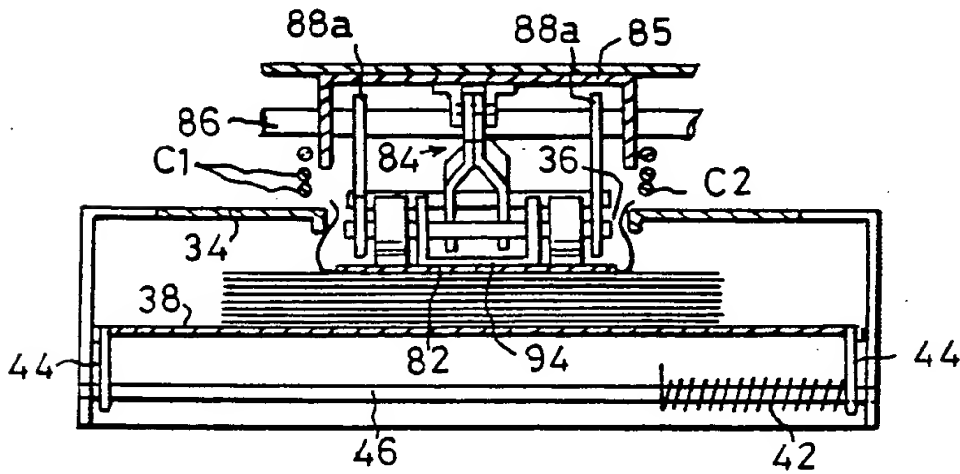


FIG. 10.

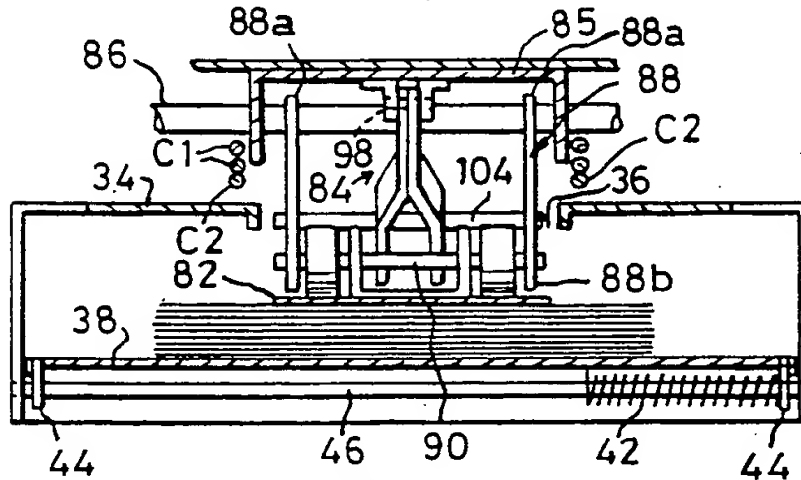
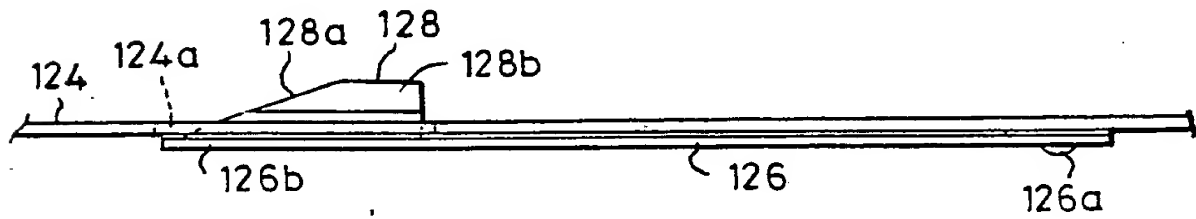
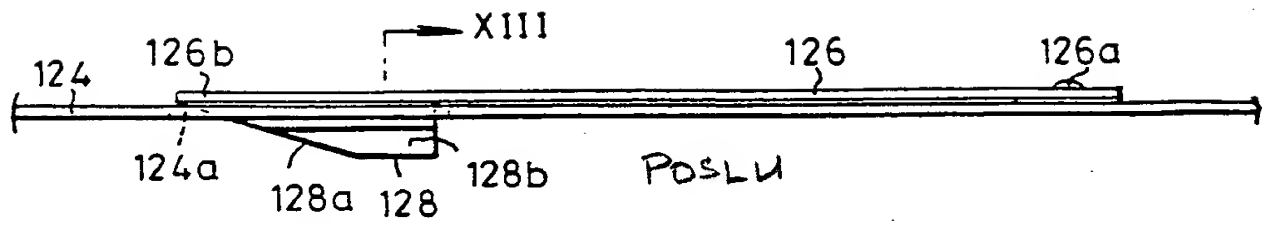


FIG. 11.



XIII

FIG. 12

POSLU

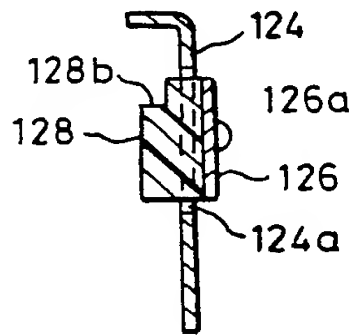
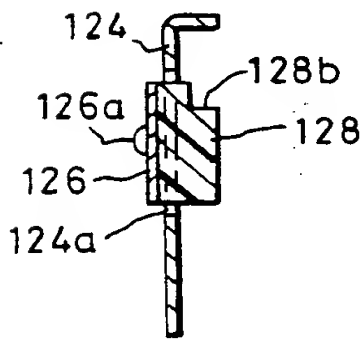


FIG. 13 .

IMPROVEMENTS IN OR RELATING TO THE TRANSFER OF CURRENCY

This invention relates to the transfer of paper currency, mainly bank-notes but also possibly cheques and card vouchers, from a point-of-sale, such as a cash till, to a predetermined receiving location, such as a bank.

It is known to have a lockable receptacle for bank-notes beside a cash till and to use the receptacle for transferring the bank-notes to a bank. However, the bank-notes have to be manually counted into and out of the receptacle.

The invention provides a secure cassette for the transfer of paper currency, and the combination of such a cassette with a point-of-sale loading unit, as claimed in each of the claims, to which reference is directed.

The invention will be described by way of example with reference to the drawings, which illustrate one example each of a point-of-sale loading unit, a two-part cassette and a receiving location unit, all constructed and adapted to operate together in accordance with the invention. In the drawings: -

FIG. 1 is an isometric view of the point-of-sale loading unit (or "POSLU") and the two-part cassette embodying the invention;

FIG. 1A is a sectioned plan view of the rear ends of the two parts of the cassette;

FIG. 2 is an isometric view of the receiving location unit;

Fig. 3 is a side elevational sectional view of the point-of-sale loading unit, partly broken away to reveal internal details;

FIG. 4 is a plan view of the point-of-sale loading unit, without the casing and key pad;

FIG. 5 is a scrap view showing three rubber cords running in grooves in a plate and entraining a bank note;

FIG. 6 is an isometric illustration of part of an insertion mechanism, for inserting paper currency into an inner, currency-holding, part of the cassette, inside the point-of-sale loading unit;

FIG. 7 is a scap view of the inner, currency-holding, part of the cassette, in section, and part of the insertion mechanism in the point-of-sale loading unit;

FIG. 8 is a similar view to that of Fig. 7, but shows a rubber cord note conveyor, omitted in Figs. 6 and 7, and omitting the insertion mechanism;

FIGS. 9, 10 and 11 are diagrammatic views showing the insertion mechanism inserting a bank note into the inner currency-holding part of the cassette; and

FIGS. 12 and 13 illustrate parts of the point-of-sale loading unit for locating and supporting the inner currency-holding part of the cassette, Fig. 13 being a section on XIII-XIII in Fig. 12.

Referring to the drawings, the cassette 10 is in two parts, namely, an inner currency-holding part 12 and a casing 14. The inner currency-holding part 12 is designed to be placed into the point-of-sale loading unit 16 for the paper currency to be transferred by the point-of-sale loading unit or "POSLU" 16 into the inner part of the cassette 10.

More particularly, the cassette 10 is designed so that, in use, the whole cassette 10 is initially loaded into the point-of-sale loading unit 16 and then the casing 14 is withdrawn, leaving the inner currency-holding part 12 inside the point-of-sale loading unit 16. The manner in which the inner

currency-holding part 12 is located and supported in the point-of-sale loading unit 16 is described hereinafter with reference to Figs. 12 and 13. The casing 14 is provided at its rear end with a first electrical solenoid-operated latch 18, to lock the inner part 12 inside the casing 14. The point-of-sale loading unit 16 is provided with a second electrical solenoid-operated latch 20, engageable with the front end of the inner part 12, to lock the inner part 12 inside the point-of-sale loading unit 16. Both latches 18, 20 may have well-known "over-centre spring" mechanisms or magnetic locks, not shown, to make them bistable, to be self-holding in either the locked positions or the unlocked positions to which they are driven by their respective solenoids, 18a and 20a. Both latches 18, 20 hook onto, or otherwise latch onto, respective parts of the inner currency-holding part 12 of the cassette 10, at the rear end and at the front end, respectively, of the inner part 12 of the cassette 10. The latch solenoid 18a in the cassette 10 is externally powered, through contacts on the casing 14 (described below) and corresponding contacts of the point-of-sale loading unit 16.

The inner currency-holding part 12 and the casing 14 are adapted and arranged for the inner part 12 to be loaded into and withdrawn through an opening 22 at the front end of the casing 14. Inside the closed rear end

of the casing 14, the casing 14 is provided with a spring-loaded button 24, operating a microswitch 25 in the casing 14 to provide an electrical signal (see below) when the inner currency-holding part 12 is pushed fully home into the casing 14. This signal is used to ensure that neither the first latch 18 nor the second latch 20 is operated - either to lock or unlock the inner part 12 - except when the inner part 12 is fully pushed home into the casing 14. The first latch 18 is counter-balanced about its pivot 18', so that it cannot be unlatched by application of a knock or jolt to the casing 14. At the rear end of the casing 14 there are two internal compression springs 27, which have to be compressed when the inner part 12 is pushed fully home, the springs 27 being mounted on two posts 27a.

The inner currency-holding part 12 of the cassette 10 comprises a frame 28 with walls 30a, 30b, 30c, 30d depending downwardly from opposite sides of a fixed plate-like element 34 which is at the top of the inner part 12 of the cassette 10 when placed inside the point-of-sale loading unit 16. The fixed plate-like element 34 has a rectangular aperture 36 which is smaller in both directions than the smallest bank-note or other piece of paper currency expected to be inserted into the cassette 10. Beneath the plate-like element 34 there is a resiliently-biased holding element 38 which is mounted on a linkage 40, so that the holding element

38 can be moved up and down, and which is normally urged upwardly by means of a spring 42 towards the underside of the plate-like element 34 to hold the paper currency between the holding element 38 and the underside of the plate-like element 34. The linkage 40 is formed by a pair of arms 44, 44 which are pivotally mounted on a shaft 46 carrying the spring 42, the shaft 46 being mounted between the pair of side walls 30c, 30d at the front end of the inner part 12, with the pair of arms 44, 44 extending towards the middle of the inner part 12, where they are pivoted at 44a to the holding element 38.

When a bank-note or other piece of paper currency is pushed through the aperture 36, the holding element 38 can be pushed a considerable distance below the plate-like element 34, so that the bank-note or other piece of paper currency can be pushed completely through the aperture 36, after which the holding element 38 is allowed to return upwardly towards the plate-like element 34, spreading the bank-note out in the process and holding it - and any other previously inserted bank-notes, cheques or credit card vouchers - in a stack between the holding element 38 and the underside of the plate-like element 34. In fact, the holding element 38 can be moved much further below the plate-like element 34 than the casing 14 would allow, if the inner currency-holding part 12 of the cassette 10 had been



inside the casing 14. However, during the insertion of bank-notes and other paper currency by means of the point-of-sale loading unit 16, the inner part 12 of the cassette 10 is not inside its casing 14, which will have been removed, see above.

As the stack of currency grows, the holding element 38 is displaced progressively downwards, eventually operating a microswitch 47 which causes a "FULL" signal to be displayed and prevents any more currency being inserted by switching off a motor (see below).

The casing 14 has an upper wall 48 and a lower wall 50 interjoined by two side walls 52, 52 and closed at its rear end by one end wall 54. In use, the inner currency-holding part 12 of the cassette 10 is inserted into the casing 14 through the opening 22 at the front end of the casing 14 and the two parts 12, 14 are locked together as described above.

An electronic memory, not shown, is provided within the casing 14 and an external electrical connection can be made to the memory via two external electrical contacts 56, 56 on the casing 14, for information to be entered into the memory. These external contacts 56, 56 on the casing 14 also serve to conduct the electrical signal to the point-of-sale loading unit 16 from the microswitch 25, operated by the button 24, see above,

when the inner currency-holding part 12 is pushed fully home into the casing 14. The external casing 14 contacts 56 are engageable by corresponding electrical contacts (not shown) in the point-of-sale loading unit 16 when the casing 14 is fully inserted into the point-of-sale loading unit 16. These contacts also serve to conduct power to the latch solenoid 18a in the cassette 10.

The point-of-sale loading unit 16 comprises a conventional keypad 60, with ten digit keys 62<sub>D</sub> and a small number of program keys 62<sub>P</sub>, for a person authorized to use the point-of-sale loading unit 16 to input predetermined identifying data to be transmitted eventually into the memory of the cassette 10. The point-of-sale unit 16 also has an LCD (liquid crystal display) panel 64 for message read-out purposes.

The point-of-sale loading unit 16 is provided with an opening for the cassette 10, the opening normally being closed by a shutter 65 which is pivoted at 65a, and which has to be manually opened by pivoting the shutter 65 downwardly, in the direction of arrow 65b, to insert the cassette 10. More particularly, the point-of-sale loading unit 16 is adapted to receive both parts 12, 14 of the cassette 10, locked together, the point-of-sale loading unit 16 being adapted to retain the inner currency-holding part 12 of the cassette 10

and to allow the casing 14 to be withdrawn in order for the bank-notes and other paper currency to be loaded into the inner part 12 of the cassette 10.

The illustrated point-of-sale loading unit 16 is a stand-alone unit which is separate from any cash till with which it is to be used. However, the point-of-sale loading unit 16 could be designed to be integral with a cash till.

In addition to the opening, closed by shutter 65, for the insertion of the cassette 10, the point-of-sale loading unit 16 also has a place for the reception of bank-notes and other paper currency. A rubber cord conveyor system is provided for automatically conveying the bank-notes and other paper currency from the reception place to a location whereat the bank-notes and other paper currency are put into the cassette 10.

Reference is directed to Figs. 3, 4 and 7 for an understanding of the rubber cord conveyor system for the paper currency. (In the following description, references to "horizontal" and "vertical" pulleys are references to pulleys having horizontal axes and vertical axes of rotation, respectively.)

On the right-hand side of the point-of-sale loading unit 16, rubber cord C1 runs from the underside of a

horizontal drive pulley P1, near the front of the point-of-sale loading unit 16, back to the underside of a horizontal idler pulley P2 near the rear of the point-of-sale loading unit 16, round to the top of pulley P2, then forwards towards the front of the point-of-sale loading unit 16 again, dipping down to go under another horizontal idler pulley P3, then rising to go over another horizontal idler pulley P4 and on to the top of the drive pulley P1, in the direction of drive, its lower reach travelling back from pulley P1 to pulley P2, its upper reach travelling forward from pulley P2 via pulleys P3 and P4 to pulley P1.

Adjacent rubber cord C2 extends around the horizontal drive pulley P1 and then, from the bottom of pulley P1, back towards the inside of an inner vertical idler pulley P5 and then the outside of an outer vertical idler pulley P6 at the rear of the point-of-sale loading unit 16, then forwards to a horizontal idler pulley P7, independantly rotatable but coaxial with drive pulley P1, travelling from the bottom to the top of pulley P7, then around an outer vertical idler pulley P8 and inner vertical idler pulley P9, which are just above and slightly to the rear of pulley P4, and then around drive pulley P1 again.

Cords C1 and C2 are close together, to grip paper currency firmly between them, from pulley P4 to pulley

P1 and then to pulley P2, in the case of cord C1, and from pulley P9 to pulley P1 and then to pulley P5 in the case of cord C2.

On the left-hand side of the point-of-sale loading unit 16, cords C1' and C2' correspond to the above-mentioned cords C1 and C2, and pulleys P1' to P5', P7' and P9' correspond to pulleys P1 to P5, P7 and P9. There are no pulleys on the left-hand side of the point-of-sale loading unit 16 corresponding to pulleys P6 and P8. Instead, the cord C2' runs from the outside of pulley P5' directly forwards to pulley P7', then directly to the outside of pulley P9', then from the inside of pulley P9' directly to the topside of drive pulley P1' and then from the underside of drive pulley P1' back to pulley P5'.

A fifth cord C3, in between cords C1, C2 and cords C1', C2', extends around drive pulley P1" and idler pulley P4", coaxial with pulleys P1 and P1' and with idler pulleys P4 and P4' respectively.

Because pulleys P8, P9 and P9' are slightly to the front of pulleys P4, P4' and P4", paper currency initially encounters cords C1, C1' and C3, before encountering cords C2 and C2'. As shown in Fig. 5, in the region of pulleys P4, P4' and P4" the cords C1, C1' and C3 run in three respective grooves or slots 66' in

the underside of a fixed plate 66, gently deforming the paper currency into the shape of the grooves or slots 66', until the currency is gripped by the cords C2 and C2'. Hence, the point-of-sale loading unit 16 does not snatch the currency, but initially entrains it only gently, in case the operator should wish to straighten it out.

The drive pulleys P1, P1' and P1", which are co-axial and of equal diameter, are all driven by a motor M1, via a toothed belt B1 running round a pulley P<sub>M1</sub> on the motor shaft and a pulley P1<sub>M</sub> which is fast with pulleys P1, P1' and P1". Idler pulleys P7 and P7' are rotatable independantly of drive pulleys P1, P1' and P1". Motor M1 is switched off when cassette 10 is full (see above) by microswitch 47.

The casing 69 of the point-of-sale loading unit 16 has a relatively large flat surface 70 for the operator to place paper money upon, to be loaded into the inner currency-holding part 12 of the cassette 10. At the front end of this surface are guides 72, at the rear end of a superstructure 74 carrying the keypad 60. There is a thin slot 76 between the guide 72, at the rear end of the superstructure 74, and the surface 70 of the base 69, through which the paper money is fed by the operator, under the guide 72, to be entrained by the cords C1, C1' and C3 and then gripped by cords C2 and C2'.

Where the paper currency is to be inserted into the inner currency-holding part 12, the point-of-sale loading unit 16 is provided with an insertion mechanism 80 comprising a vertically reciprocable pusher member 82 which is driven downwardly by operation of the insertion mechanism 80, to push the piece of paper currency right through the aperture 36 in the plate-like element 34, depressing the resiliently-biased holding element 38 against the spring bias, moving successively from the position shown in Fig. 9 to that of Fig. 10 and then that of Fig. 11. In this way, the paper currency is stacked between the underside of the plate-like element 34 and the top of the holding element 38, which returns upwardly under its spring-bias when the pusher member 82 is retracted upwardly by the pusher member drive in the point-of-sale loading unit 16.

The pusher member 82 is a flat plate, shown best in Fig. 6, connected by a "scissor linkage" 84 to a fixed plate 85 above the pusher member. This scissor linkage 84 comprises a drive shaft 86 extending through flanges 82a, 82b depending downwardly from the fixed plate 85. Welded, or otherwise fixed to the drive shaft 86, are top ends 88a, 88a of a first pair of parallel arms 88, 88 of the scissor linkage 84. Bottom ends 88b, 88b of these arms 88 are interconnected by a shaft 90 which extends through elongate slots 92 in a first bracket 94

welded to the pusher member 82. Top ends 96a of a second pair of parallel arms 96, 96 of the scissor linkage 84 are interconnected by another shaft 98 which extends through elongate slots 100 in a second bracket 102 which is welded to the fixed plate 85, above the first pair of brackets 94. The second pair of parallel arms 96 cross over the first pair of parallel arms 88 as shown, being pivoted thereto by another shaft 104, and the bottom ends 96b, 96b of the second pair of parallel arms 96 are interconnected by a shaft 106 which extends through elongate slots 108, 108 in a third bracket 110, welded to the pusher member 82 beneath the drive shaft 86, and carries a roller 109.

Welded to one end of the drive shaft 86 is one end 112a of a drive arm 112, omitted in Fig. 4, the other end 112b (Fig. 7) of which has an elongate slot 114, in which there runs a pin 116 fixed to the rim of a drive pulley  $P_{M2}$  on the shaft of a second motor M2. One revolution of pulley  $P_{M2}$  on the shaft of motor M2 causes the drive arm 112 to oscillate once, pushing the pusher member 82 once down and then up again, to push paper currency through the aperture 36, see above.

The point-of-sale loading unit 16 is provided with three photo electric cells 118 fitted with respectively different colour filters for detecting the denomination of each bank-note as it passes the photo electric cells



118, the bank-note being illuminated by a lamp 120 via a mask 122 which directs a narrow beam of light onto the currency, for sensing by the three photo electric cells 118. In this way, the photo electric cells 118 can determine whether a bank-note is £5, £10, £20 or £50. The point-of-sale loading unit 16 does not detect forgeries or counterfeits, although obviously it might be possible to modify the point-of-sale loading unit 16 to incorporate sophisticated devices for this purpose. Notes must be fed in face up, one way round, to avoid rejection. Hence all notes in the stack face the same way, which is a benefit for the receiving location later. However, the apparatus could be modified to make it unnecessary to feed all the notes in one way round only.

The point-of-sale loading unit 16 is adapted to automatically reject a piece of paper which is not recognized by the photo electric cells and associated circuitry. However, if the cassette 10 is required to receive cheques and/or credit card vouchers, the sales assistant must be able to operate an override control, not shown, for example, a key on keypad 60, so as to cause the point-of-sale loading unit 16 to accept the cheque or voucher for insertion into the cassette 10, despite non-recognition of it. The point-of-sale loading unit 16 is equipped with state-of-the-art circuitry for accumulating data on the currency inserted

into the cassette 10. Besides reading actual currency notes, the POSLU preferably allows the value of cheques and charge/credit card vouchers to be keyed in.

Reference is made to Figs. 12 and 13 for a description and illustration of how the inner currency-holding part 12 is located and supported inside the point-of-sale loading unit 16. More particularly, the point-of-sale loading unit 16 has two side frames 124, to the outsides of which two leaf springs 126 are respectively fixed by rivets 126a. A respective nylon wedge 128 is fixed to a free end portion 126b of each leaf spring 126. The wedges 128 protrude inwardly through openings 124a in side frames 124, with the leaf springs 126 lying flat against the side frames 124, when the cassette is not inside the point-of-sale loading unit 16.

As the cassette 10 is inserted into the point-of-sale loading unit 16, the front end of the casing 14 of the cassette 10 engages the sloping surfaces 128a of the wedges 128 and pushes the wedges 128 apart, so that the wedges 128 slide along the sides of the casing 14 of the incoming cassette 10.

As the casing 14 is withdrawn (see above) the leaf springs 126 thrust the wedges 128 inwardly until a recess 128b in the top of each wedge 128 is engaged by a

downwardly projecting lug 127 at the respective side of the inner currency-holding part 12, thereby locating the inner currency-holding part 12 both laterally and vertically, for supporting it against the considerable force of the insertion mechanism 80 (see above). A tapered peg 129 (Fig. 3) inside, and forming part of, the point-of-sale loading unit 16 enters a hole 130 at the front end of the inner currency-holding part 12 to help locate and support the latter.

Later re-insertion of the casing 14 (see above) causes the wedges 128 to be moved outwardly again, against the spring-bias of the leaf springs 126, due to re-engagement of the sloping surfaces 128a. When it is required for the cassette 10 to be removed, the casing 14 is inserted (through the opening 65) into the space in the point-of-sale loading unit 16 so as to slide over the inner currency-holding part 12 of the cassette 10, displacing the wedges 128, until the two parts 12, 14 of the cassette 10 can be locked together by operation of the first latch 18. Locking together of the two parts 12, 14 of the cassette 10 produces an electrical signal (by means not shown) at the electrical contacts 56 on the outside of the casing 14, the electrical signal being picked up by the contacts (not shown) of the point-of-sale loading unit 16 and used to enable the inner currency-holding part 12 of the cassette 10 to be unlocked from the point-of-sale loading unit 16, by operation of the second latch 20, so that the inner currency-holding part 12 can be withdrawn, locked to the

casing 14, from the point-of-sale loading unit 16 when the casing 14 itself is withdrawn from the point-of-sale loading unit 16. The signal also causes the point-of-sale loading unit 16 to transfer, into the memory of the cassette 10, data concerning the paper currency held within the cassette 10, preferably including the values of cheques and vouchers (see above) as well as data identifying the point-of-sale loading unit 16 as such and also identifying the person operating the point-of-sale loading unit 16.

In use, a person authorized to use the equipment is provided with an empty cassette 10, the two parts being initially locked together. The cassette 10 is loaded into the point-of-sale loading unit 16 until the cassette contacts 56 engage the point-of-sale loading unit contacts (not shown) and the inner currency-holding part 12 of the cassette 10 can be locked by means of the second latch 20 to the point-of-sale loading unit 16, allowing the casing 14 to be electrically unlocked by means of the first latch 18 from the inner part 12 so that the casing 14 can be withdrawn from the point-of-sale loading unit 16. For the point-of-sale loading unit 16 to carry out this preliminary operation, the authorized person will have had to enter a code into the point-of-sale loading unit 16 by means of the keypad 60.

Then, as bank-notes which are surplus to the "float" in the cash till (not shown) become available, the person feeds them into the point-of-sale loading unit 16, which then conveys them (unless rejected) to the point where they are pushed by the pusher member 82 into the inner currency-holding part 12 of the cassette 10 as described above. At the end of the day, or when the cassette 10 is full, or when a different person takes over, the procedure for withdrawing the cassette 10 is carried out, involving reinsertion of the casing 14 until the two cassette parts 12, 14 can be locked together, the inner currency-holding part 12 becoming able to be unlocked from the point-of-sale loading unit 16 and the latter transferring the data concerning contents etc. into the memory of the cassette 10, which is then withdrawn for transfer to the bank or other authorized receiving location. The data read into the memory of the cassette 10 includes, besides the number of five-pound, ten-pound, twenty-pound and fifty-pound notes in the cassette 10, also data identifying the point-of-sale and/or the commercial establishment in which the point-of-sale loading unit is located, and the sales staff operating the point-of-sale loading unit 16.

The bank is provided with equipment, referred to as a receiving location unit 131, for reading the data in the memory of the cassette 10 and for unlocking the two cassette parts 12, 14 so that the inner currency-holding

part 12 can be withdrawn from the casing 14 and the currency can be extracted. The receiving location unit 131 comprises another keypad 132 having ten digit keys and a few program keys. The receiving location unit 131 also comprises an LCD screen 134, and an electrical cable 136 with a connector 138 for connection to a socket 139 (Fig. 1) on the cassette 10.

The system as a whole makes it unnecessary to manually count the currency as the currency is inserted into the cassette 10, thus saving considerable time and expense. Secondly, the cassette 10 provides a reasonably secure means for transferring the currency to the bank, since the cassette 10 is strongly constructed to be highly tamper-resistant.

Although there are many ways in which software could be arranged to operate the cassette 10, the point-of-sale loading unit 16 and the receiving location unit, there follows a description of one particular example of suitable software.

In this example, the point-of-sale loading unit 16 issues instructions, causing or requiring action as appropriate, as follows:-

## a) "FIT CASHETTE":

This requires the operator to insert an assembled cassette 10 into the point-of-sale loading unit 16, which detects the cassette 10 as having been inserted when the external contacts on the casing 14 are engaged by the corresponding electrical contacts of the point-of-sale loading unit 16, allowing forward transmission of a "Cassette-loaded" signal in the point-of-sale loading unit 16;

## b) "COMPRESS" or "PUSH CASSETTE":

This requires the operator to push the cassette 10 until the interior button 24 at the rear of the casing 14 is depressed by the inner currency-holding part 12, signalling that the inner part 12 is fully home in the casing 14; then the software signals the second latch 20, in the point-of-sale loading unit 16, to latch onto the front end of the inner currency-holding part 12 of the cassette 10; at this time, the casing 14 is still locked to the inner currency-holding part 12 by the first latch 18;

## c) "ENTER OPERATOR":

The operator should then enter his/her identity number;

d) "ENTER P. I. N.":

The Operator then enters the Operator's Personal Identification Number, known only to the Operator and tp personnel such as Security Staff and Senior Management.

e) "PUSH AGAIN":

The operator should then again push the cassette 10, so that the interior button at the rear of the casing 14 is again depressed by the inner currency-holding part 12, signalling that the inner part 12 is fully home in the casing 14; then the software signals the first latch 18, in the casing 14, to unlock the casing 14 from the inner part 12 of the cassette 10, so that the casing 14 can be withdrawn;

f) "WITHDRAW CASE":

Withdrawal of the casing 14 is detected by the casing contacts disengaging from the contacts of the point-of-sale loading unit 16.

When the Operator wishes to withdraw the inner currency-holding part 12 of the cassette 10 from the point-of-sale loading unit 16, he/she simply inserts the casing 14 back into the point-of-sale loading unit 16,



until the external casing contacts are engaged by the contacts of the point-of-sale loading unit 16, as before; this is step a' ), which may or may not be prompted by a display on the panel during the use of the system;

b' ) "COMPRESS" or "PUSH CASSETTE" is then displayed:

The operator pushes the cassette 10 so that the interior button at the rear of the casing 14 is again depressed by the inner currency-holding part 12, signalling that the inner part 12 is fully home in the casing 14; then the software signals the first latch 18, in the casing 14, to lock the casing 14 onto the inner part 12 of the cassette 10; at this point, the point-of-sale loading unit 16 transfers the information about the cuurrency stored in the cassette 10 into the memory of the cassette 10, through the contacts of the point-of-sale loading unit 16 and the contacts of the casing 14;

c' ) "PUSH AGAIN":

The operator should then again push the cassette 10, so that the interior button at the rear of the casing 14 is again depressed by the inner currency-holding part 12, signalling that the inner part 12 is fully home in the casing 14; then the software signals the second

latch 20, of the point-of-sale loading unit 16, to unlock the point-of-sale loading unit 16 from the inner part 12 of the cassette 10, so that the casing 14 can be withdrawn with the inner part 12 of the cassette 10, containing the currency, locked inside it.

The receiving location is equipped with a "Receiving location unit", shown in Fig. 2, comprising a housing containing electronics and fitted with its own keyboard, and also having an LCD display panel and an electric cable for connection to a cassette 10.

The receiving location unit electronics may display a "menu" of options, such for example as follows:-

"1. IDENTIFY" (that is, identify the "POSLU" or point-of-sale loading unit. Hence, operation of key "1" causes the receiving location unit to read and display data identifying the POSLU.)

"2. CONTENTS" (that is, the contents of the cassette 10, so that operation of key "2" causes the receiving location unit to read and display data indicating the currency contents of the cassette 10 as entered in the memory of the cassette 10, that is, the numbers of five, ten, twenty and fifty pound notes and the total value of the currency.)

"3. PIN" (Hence, operation of key 3 enables the official at the receiving location to enter his/her own Personal Identity Number.)

"4. PRINT" (Operation of key 4 causes the receiving location unit to print-out the data on a printer (not shown).)

"5. OP" (Operation of key 5 causes the receiving location unit to read and display data indicating the identity of the Operator at the point-of-sale loading unit.)

"6. "(UN)LOCK" (Operation of key 6 causes the receiving location unit to display a sub-menu saying: -

"1. LOCK.

2. UNLOCK." (This invites operation of key "1" or key "2" to lock, or unlock, respectively, the casing 14 and the inner currency-holding part 12 of the cassette 10, by corresponding operation of the first latch 18, inside the casing 14.)

It is to be understood that the apparatus could be adapted to operate with other paper currency than pounds sterling.

## Claims: -

1. A secure cassette for the transfer of paper currency from a point-of-sale to a predetermined receiving location, the cassette comprising a compartment for the paper currency, with access to the compartment for the paper currency to be put into the compartment at the point-of-sale, a memory device for storing information about the contents of the cassette, means for making an external connection to said memory device for entry of said information at the point-of-sale and for making an external connection to said memory device for reading of said information at, at least, the receiving location, means for locking the compartment closed and securely closing said access when the transfer is to be made and enabling opening of the compartment, whereby the paper currency can be removed, at the receiving location.

2. A cassette as claimed in claim 1, the cassette being in two parts, a first one of which is adapted to be inserted into a point-of-sale-loading-unit for the putting into the compartment of the paper currency, the second one of which parts is adapted to form a casing for the first part during the transfer, the cassette comprising means to lock the two parts together during the transfer.

3. A cassette as claimed in claim 2, wherein the second cassette part is provided with external electrical contacts for the said external connections to be made to the memory device.

4. A cassette as claimed in claim 2 or 3, wherein the first part comprises at least part of a mechanism for stacking the paper currency.

5. A cassette as claimed in claim 2, 3 or 4, wherein the first part is longitudinally slidable into and out one end of the second part, which forms a casing for the first part, the other end of the second part being permanently closed and being provided with at least part of the means for locking the two parts together during the transfer.

6. A cassette as claimed in at least claim 2, wherein said first part of the cassette comprises a fixed plate-like element having an aperture therein for the paper currency to be pushed through the aperture from one side to the other side of the fixed plate-like element, and a resiliently-biased holding element arranged movably on said other side of the plate-like element and normally urged towards said other side of the plate-like element to hold the paper currency between the holding element and said other side of the plate-like element.

7. A cassette as claimed in claim 6, wherein said holding element is mounted on a spring-biased linkage.

8. A cassette as claimed in any preceding claim, in combination with a point-of-sale loading-unit for putting the paper currency into the compartment, the point-of-sale loading-unit comprising means for receiving paper currency and for automatically putting the paper currency into the cassette or into a part of the cassette, said combination comprising means to evaluate paper currency put into the cassette, for the value to be stored in the memory.

9. The combination as claimed in claim 8, wherein the point-of-sale loading-unit comprises means for reading paper currency to evaluate it.

10. The combination as claimed in claim 9, wherein the point-of-sale loading-unit comprises means for rejecting paper currency which it does not recognise.

11. The combination as claimed in claim 10, wherein the point-of-sale loading-unit comprises selectively operable means for overriding such rejection by an authorised person at the point-of-sale.

12. The combination as claimed in any one of claims 8 to 11, wherein the cassette is as claimed in claim 6 and wherein the point-of-sale loading-unit comprises means for feeding paper currency to a loading location, within the point-of-sale loading-unit, whereat a pusher mechanism of the point-of-sale loading-unit automatically pushes the paper currency through said aperture.

13. The combination as claimed in any one of claims 8 to 12, wherein the point-of-sale loading-unit comprises pairs of moving belts and/or cords between which the paper currency is fed by being carried along thereby.